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          Arg Arg Asn Thr Phe Gly Asp Phe Val Ser Leu Gln Val Asn Ile Asn
          Ser Pro Ile Thr Gln Arg Tyr Arg Leu Arg Phe Arg Tyr Ala Ser Ser
          Arg Asp Ala Arg Val Ile Val Leu Thr Gly Ala Ala Ser Thr Gly Val
          Gly Gly Gln Val Ser Val Asn Met Pro Leu Gln Lys Thr Met Glu Ile
    5     Gly Glu Asn Leu Thr Ser Arg Thr Phe Arg Tyr Thr Asp Phe Ser Asn
          Pro Phe Ser Phe Arg Ala Asn Pro Asp Ile Ile Gly Ile Ser Glu Gln
          Pro Leu Phe Gly Ala Gly Ser Ile Ser Ser Gly Glu Leu Tyr Ile Asp
          Lys Ile Glu Ile Ile Leu Ala Asp Ala Thr Phe Glu Ala Glu Ser Asp
          Leu Glu Arg Ala Gln Lys Ala Val Asn Ala Leu Phe Thr Ser Ser Asn
   10     Gln Ile Gly Leu Lys Thr Asp Val Thr Asp Tyr His Ile Asp Gln Val
          Ser Asn Leu Val Asp Cys Leu Ser Asp Glu Phe Cys Leu Asp Glu Lys
          Arg Glu Leu Ser Glu Lys Val Lys His Ala Lys Arg Leu Ser Asp Glu
          Arg Asn Leu Leu Gln Asp Pro Asn Phe Arg Gly Ile Asn Arg Gln Pro
          Asp Arg Gly Trp Arg Gly Ser Thr Asp Ile Thr Ile Gln Gly Gly Asp
   15     Asp Val Phe Lys Glu Asn Tyr Val Thr Leu Pro Gly Thr Val Asp Glu
          Cys Tyr Pro Thr Tyr Leu Tyr Gln Lys Ile Asp Glu Ser Lys Leu Lys
          Ala Tyr Thr Arg Tyr Glu Leu Arg Gly Tyr Ile Glu Asp Ser Gln Asp
          Leu Glu Ile Tyr Leu Ile Arg Tyr Asn Ala Lys His Glu Ile Val Asn
          Val Pro Gly Thr Gly Ser Leu Trp Pro Leu Ser Ala Gln Ser Pro Ile
   20     Gly Lys Cys Gly Glu Pro Asn Arg Cys Ala Pro His Leu Glu Trp Asn
          Pro Asp Leu Asp Cys Ser Cys Arg Asp Gly Glu Lys Cys Ala His His
          Ser His His Phe Thr Leu Asp Ile Asp Val Gly Cys Thr Asp Leu Asn
          Glu Asp Leu Gly Val Trp Val Ile Phe Lys Ile Lys Thr Gln Asp Gly
          His Ala Arg Leu Gly Asn Leu Glu Phe Leu Glu Glu Lys Pro Leu Leu
   25     Gly Glu Ala Leu Ala Arg Val Lys Arg Ala Glu Lys Lys Trp Arg Asp
          Lys Arg Glu Lys Leu Gln Leu Glu Thr Asn Ile Val Tyr Lys Glu Ala
          Lys Glu Ser Val Asp Ala Leu Phe Val Asn Ser Gln Tyr Asp Arg Leu
          Gln Val Asp Thr Asn Ile Ala Met Ile His Ala Ala Asp Lys Arg Val
          His Arg Ile Arg Glu Ala Tyr Leu Pro Glu Leu Ser Val Ile Pro Gly
   30     Val Asn Ala Ala Ile Phe Glu Glu Leu Glu Gly Arg Ile Phe Thr Ala
          Tyr Ser Leu Tyr Asp Ala Arg Asn Val Ile Lys Asn Gly Asp Phe Asn
          Asn Gly Leu Leu Cys Trp Asn Val Lys Gly His Val Asp Val Glu Glu
          Gln Asn Asn His Arg Ser Val Leu Val Ile Pro Glu Trp Glu Ala Glu
          Val Ser Gln Glu Val Arg Val Cys Pro Gly Arg Gly Tyr Ile Leu Arg
   35     Val Thr Ala Tyr Lys Glu Gly Tyr Gly Glu Gly Cys Val Thr Ile His
          Glu Ile Glu Asp Asn Thr Asp Glu Leu Lys Phe Ser Asn Cys Val Glu
          Glu Glu Val Tyr Pro Asn Asn Thr Val Thr Cys Asn Asn Tyr Thr Gly
          Thr Gln Glu Glu Tyr Glu Gly Thr Tyr Thr Ser Arg Asn Gln Gly Tyr
          Asp Glu Ala Tyr Gly Asn Asn Pro Ser Val Pro Ala Asp Tyr Ala Ser
   40     Val Tyr Glu Glu Lys Ser Tyr Thr Asp Gly Arg Arg Glu Asn Pro Cys
          Glu Ser Asn Arg Gly Tyr Gly Asp Tyr Thr Pro Leu Pro Ala Gly Tyr
          Val Thr Lys Asp Leu Glu Tyr Phe Pro Glu Thr Asp Lys Val Trp Ile
          Glu Ile Gly Glu Thr Glu Gly Thr Phe Ile Val Asp Ser Val Glu Leu
          Leu Leu Met Glu Glu
   45
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5.14 EXAMPLE 14 -- NUCLEIC ACID SEQUENCES OF THE GENES

ENCODING MODIFIED CRY1C* CRYSTAL PROTEINS

5.14.1 NUCLEIC ACID SEQUENCE OF *CRY1C-R148A* (SEQ ID NO:1)

ATGGAGGAAAATAATCAAAATCAATGCATACCTTACAATTGTTTAAGTAATCCTGAAGAAGTACTTTTGGAT
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TTTGTACCAGGGGGAGGATTTTTAGTTGGATTAATAGATTTGTATGGGGAATAGTTGGCCCTTCTCAATGG
GATGCATTTCTAGTACAAATTGAACAATTAATTAATGAAAGAATAGCTGAATTTGCTAGGAATGCTGCTATT
GCTAATTTAGAAGGATTAGGAAACAATTTCAATATATATGTGGAAGCATTTAAAGAATGGGAAGAAGATCCT
AATAATCCAGCAACCAGGACCAGAGTAATTGATCGCTTTCGTATACTTGATGGGCTACTTGAAAGGGACATT
CCTTCGTTTGCAATTTCTGGATTTGAAGTACCCCTTTTATCCGTTTATGCTCAAGCGGCCAATCTGCATCTA
GCTATATTAAGAGATTCTGTAATTTTTGGAGAAAGATGGGGATTGACAACGATAAATGTCAATGAAAACTAT
AATAGACTAATTAGGCATATTGATGAATATGCTGATCACTGTGCAAATACGTATAATCGGGGATTAAATAAT
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GATATCGCCGCTTTCTTTCCAAACTATGACAATAGGAGATATCCAATTCAGCCAGTTGGTCAACTAACAAGG
GAAGTTTATACGGACCCATTAATTAATTTTAATCCACAGTTACAGTCTGTAGCTCAATTACCTACTTTTAAC
GTTATGGAGAGCAGCGCAATTAGAAATCCTCATTTATTTGATATATTGAATAATCTTACAATCTTTACGGAT
TGGTTTAGTGTTGGACGCAATTTTTATTGGGGAGGACATCGAGTAATATCTAGCCTTATAGGAGGTGGTAAC
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GTATCTCTACAAGTCAATATTAATTCACCAATTACCCAAAGATACCGTTTAAGATTTCGTTACGCTTCCAGT
AGGGATGCACGAGTTATAGTATTAACAGGAGCGGCATCCACAGGAGTGGGAGGCCAAGTTAGTGTAAATATG
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GAGATCGAAGACAATACAGACGAACTGAAATTCAGCAACTGTGTAGAAGAGGAAGTATATCCAAACAACACA
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GACGAAGCCTATGGTAATAACCCTTCCGTACCAGCTGATTACGCTTCAGTCTATGAAGAAAAATCGTATACA
GATGGACGAAGAGAGAATCCTTGTGAATCTAACAGAGGCTATGGGGATTACACACCACTACCGGCTGGTTAT

GTAACAAAGGATTTAGAGTACTTCCCAGAGACCGATAAGGTATGGATTGAGATCGGAGAAACAGAAGGAACA
TTCATCGTGGATAGCGTGGAATTACTCCTTATGGAGGAA

5.14.2 NUCLEIC ACID SEQUENCE OF *CRY1C-R148D* (SEQ ID NO:3)

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GATGCATTTCTAGTACAAATTGAACAATTAATTAATGAAAGAATAGCTGAATTTGCTAGGAATGCTGCTATT
GCTAATTTAGAAGGATTAGGAAACAATTTCAATATATATGTGGAAGCATTTAAAGAATGGGAAGAAGATCCT
AATAATCCAGCAACCAGGACCAGAGTAATTGATCGCTTTCGTATACTTGATGGGCTACTTGAAAGGGACATT
CCTTCGTTTGACATTTCTGGATTTGAAGTACCCCTTTTATCCGTTTATGCTCAAGCGGCCAATCTGCATCTA
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AATAGACTAATTAGGCATATTGATGAATATGCTGATCACTGTGCAAATACGTATAATCGGGGATTAAATAAT
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